

BBM 407 Term Project

Do the following project and send the relevant files by e-mail until 16 May 2022 23:59 at the latest. (bkurkcu@cs.hacettepe.edu.tr)

Please pay attention to the following points in order to avoid problems in submitting and evaluating homework:

- The file types that will be included in the assignment are as follows: i) A computer program itself ready to be run ii) .doc/.docx extension: in which environment you wrote it and the reason for it/ if any, the version of the language iii) You describe the work you have done, show the mathematical operations and interpret the results. A report with doc/.docx extension, iv) PDF version of the report and your chosen question's description (with .pdf extension)
- Code and model files should be ready to run. When the files are opened and Run is called, it should work without errors and give results. It is not possible for us to make changes on the files while the assignments are being read (add extra code somewhere, close a part of the code and run only a part of it, change the variable values, etc.). For example, "For Scenario X, the same function as in Scenario Y will be used, but before running, you need to change the parameters like this, and the input of this block will be taken from here." comments are invalid. If there is such a case, make these changes yourself and save them as a different model and make sure that it gives the desired results when the Run button is pressed.
- If you do not know or have forgotten the systems given in the homework, or if you have difficulty in making models, do not hesitate to do extra research, benefit from books, articles, websites. However, as a result, make sure you understand the system's operation and model extraction and describe them in your own words in your report. Do not forget that directly copy-pasted results and comments will be detected and cause you to get a low score. Be sure to list such sources you use in the References section at the end of your report. Do not neglect to cite the relevant source exactly where you use a source in the report.
- In order to beautify your drawings in the homework, please use titles, naming axes, legends, etc. take advantage of the tools.
- Add lots of comments inside your code. No matter how detailed the work done is explained in the report, detailed comments should be written inside the codes themselves. Note that code without comments is considered bad code and will receive a low score

Find your Question, and prepare your project

First: Find a suitable system, describe it. The first obligation on your problem is it must be a physical example (system). This system cannot be the same or very similar to what we do in the classroom. Nor can it be a mathematically abstract system, it must be a concrete system that exists in the real world. The system is your own area of interest, thesis topic, etc. It might be better for you.

Then, briefly describe the system. Specify what its input, output, and states are. Write the differential equations. Specify parameter values (including their units). Post photos and/or schematic representation of the system.

Final part: This part should request system check, interpretation of results, put in report and sending codes. Define what the control intent is. Consider separately 2 different fuzzy logic control techniques for control system design. Then write and discuss a conclusion part where you compare the results.